

REMARKS

INTRODUCTION:

Claims 1 - 23 are in this case. Claims 1-23 are rejected. Claims 10, 16, and 18 are objected to.

OBJECTIONS UNDER 37 C.F.R. §1.75(c):

The Examiner has objected to claims 16 and 18 as being of improper dependent form. This objection is believed to be in error.

Prior to applicant's reply to the first office action in this case, claim 1 included the claim limitation "wherein the medium and the optical waveguide exhibit a coupling efficiency of at least 40%". In the reply, applicants opted to broaden claim 1 with respect to that limitation. The limitation, "coupling efficiency of at least 40%", was removed from claim 1 and incorporated into dependent claims 16 and 18. The limitation is supported by the Specification at page 2, lines 17-20, and page 5, lines 25-26. The limitation does further restrict claim 1 as previously amended.

OBJECTIONS UNDER 37 C.F.R. §112:

The Examiner objects to claim 10 as being indefinite with respect to the phrase "in the absence of coupling optics". This objection is improper.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention. (35 U.S.C. §112).

The Examiner states that it is unclear as to how the gain medium and the optical waveguide are coupled in the absence of coupling optics. In fact the Specification explains this point very clearly. The Specification describes coupling optics as optical components, "including tapered or conical lens formed or spliced onto the fiber, or a variety of other lens configurations". (Specification, page 2, lines 4-6). Claim 10 relies on this adequate definition of coupling optics and is therefore proper under §112.

REJECTION UNDER 35 U.S.C. 102(b):

Claims 1-23 are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No. 5,870,417, "*Thermal Compensators for DBR Laser Sources*", issued February 9, 1999 to Verdiell, et al. (hereinafter "Verdiell").

These rejections are respectfully traversed.

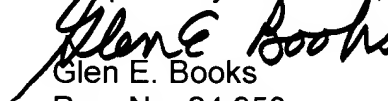
It is well established that a claimed invention is anticipated by a prior patent only if the patent discloses each and every limitation of the claim. In the present case, claims 1-23 are directed to an optical communication system comprising an external cavity laser wherein the laser is configured to provide multimode output of at least two modes within the grating bandwidth. Verdiell does not provide a multimode output.

Lasers are typically used to launch light for communications systems. They can launch light in one or more modes. The launching of light in one or several modes is distinguished from the optical path type, which can be a single mode fiber or a multiple mode fiber. In the instant invention, the inventors discovered that it can be advantageous to launch more than one mode of light in communications systems. Many communications systems are based on single mode fiber. An important aspect of the invention is that several modes of light can be launched simultaneously into such communications fibers. Claims 1 and 11 specifically require that "the laser is configured to provide multimode output of a least two modes within the grating bandwidth".

The examiner cites to Verdiell, col. 4, lines 23-54. In this section Verdiell discloses that his single mode laser *can launch a single mode of light* into a multimode fiber. In fact Verdiell's entire patent deals with techniques of suppressing mode hopping to attain only a single launch mode. (Verdiell, col. 2, lines 63-67, col. 5, lines 44-46, col. 15, lines 64-66). Thus Verdiell does not disclose an optical communication system comprising an external cavity laser wherein the laser is configured to provide multimode output of at least two modes within the grating bandwidth. Accordingly, it does not anticipate claim 1, claim 11, or the remaining claims dependent thereon.

In view of the foregoing, it is respectfully submitted that claims 1 - 23 patentably distinguish from the cited art. Accordingly, this case now fully complies with the provisions of 35 U.S.C. Sections 102 and is now in condition for allowance. Reconsideration and favorable action in this regard is therefore earnestly solicited.

Respectfully submitted,


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